

## PREDATION OF HACKBERRY PSYLLID GALLS BY FOX SQUIRREL<sup>1</sup>

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**ABSTRACT:** Hackberry trees have long been known to supply food in the form of fruit for fox squirrels. Observations reported herein add hackberry psyllid galls as a source of nutrition for these animals and add an additional predator which could affect the population dynamics of hackberry gall insects.

**DESCRIPTORS:** hackberry gall insects, *Pachypsylla celtidis-mamma*, *Pachypsylla venusta*, fox squirrel, *Sciurus niger*, nutrition.

Fox squirrels (Sciuridae: *Sciurus niger limitus* Baird) feed on a great variety of plant materials (Martin, et al., 1951). Fruits of numerous shrubs and trees are favored, although succulent buds are a major part of their winter diet.

Fox squirrels are quite common in wooded areas of residential Austin, Travis County, Texas. Fall foods consist of fruit of pecan, various oaks and cedar elm. Spring foods appear to be largely fruit of Texas sugarberry (Ulmaceae: *Celtis laevigata* Willd.) in addition to stored foods, although insects and green shoots are also eaten. Hackberry fruit has been reported previously as a minor food for fox squirrels in Michigan (Allen, 1943).

On 25 May 1970, I observed an adult fox squirrel feeding in the upper branches of a Texas sugarberry tree. Occasionally it would drop a small branch which it had broken from the tree to facilitate feeding. Examination of these branches revealed fruit which had been partially eaten. Much of the fleshy pulp had been removed, leaving the stony seed. In addition, galls of the hackberry nipple gall psyllid, Psyllidae: *Pachypsylla celtidis-mamma* (Riley), were partially eaten. The base of the gall where it merges with normal leaf tissue remained intact.

Woodpeckers, "mice" and gray squirrels have been reported to open galls in search of gall insects (Davis, 1931, and references therein). The fox squirrel described in this article was probably simply feeding on succulent gall tissue as *P. celtidis-mamma* is a very small insect. Adults including wings are three to

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four millimeters in length (Tuthill, 1943). The amount of gall material in an individual gall is very small, but the galls are abundant (up to ten per leaf). Actually, one gall may contain nearly as much edible plant material as one fruit, because most of the gall is plant tissue with only a relatively small sinus for the gall insects (see fig. 193 in Felt, 1940).

Gray squirrels have been observed feeding on bark of water oak during a time of food shortage following Hurricane Camille (Gunter & Eleurius, 1971). No known food shortage occurred at the time of observation of hackberry leaf galls by a fox squirrel. Significantly, this fox squirrel did not feed on galls of the hackberry petiole gall psyllid, *Pachypsylla venusta* (Osten-Sacken). Galls of this insect are comparatively large but are very hard, being woody in texture and, presumably, of inferior nutritive value.

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